

CHAPTER 2.0: SERVICE AREA PROFILE

2.1 HISTORY OF WATER DEVELOPMENT WITHIN THE YORBA LINDA WATER DISTRICT

The Yorba Linda Water District is an independent special district providing water and sewer service to most of the City of Yorba Linda and portions of the Cities of Brea, Placentia, Anaheim, and unincorporated Orange County. The District's history dates to 1909 when the privately owned Yorba Linda Water Company was formed.

The present YLWD was organized as the Yorba Linda County Water District (YLCWD) on January 2, 1959 as a result of a vote of local residents. The new district was formed according to the provisions of County Water District Law under Division XII of the California Water Code (Section 30000 et seq.). On January 2, 1959 voters in the proposed district authorized issuance of \$1,900,000 in General Obligation bonds to finance the purchase of assets belonging to the Yorba Linda Water Company and construction of water improvements to the growing Yorba Linda community. Through 1959 the service area was largely rural in character with a small residential community at its center. In 1959 the service area covered 4,710 acres and the YLCWD provided service to 1,412 active connections.

From 1959 through the mid-1970's, YLCWD experienced a gradual transition from a rural, agriculturally oriented area to a suburban community. In 1978 the District's Board of Directors agreed to annex lands to the east of then current boundaries that more than doubled the District's size. These annexations made YLCWD the largest County Water District in terms of geographic area in Orange County. Annexations completed in 1989 added 50 acres to the District's service area. Annexations completed in 1996 added another 843 acres. The District's present size is about 14,475 acres.

In response to the proposed 1978 annexations, the Board of Directors commissioned the preparation of a Water Facilities Master Plan by James M. Montgomery, Consulting Engineers. The Plan identified water production, storage, and transmission facilities to service the newly acquired territory, and estimated the cost to construct the major water facilities. The proposed annexations were divided into two Improvement Districts representing separate areas of benefit to future homeowners.

The Yorba Linda County Water District Board of Directors approved annexation of Improvement District No. 1 in May of 1978 and Improvement District No. 2 in June of 1978. Subsequently,

voters in the two Improvement Districts authorized issuance of General Obligation Bonds to finance construction of backbone facilities. To date a total of two series of General Obligation Bonds have been issued in Improvement District No. 1 and three series, along with one refinancing issue, in Improvement District No. 2. These annexations increased YLWD's service area by 50%. Subsequently, YLWD entered a phase of high development within these annexations over the next twenty-five years.

In November of 1985 the Board of Directors, seeking a more accurate identification as an independent special district, dropped the "County" designation, thus officially changing the District's name to Yorba Linda Water District (YLWD).

In 1996 the District annexed acreage in the former Shell Oil property, adding additional area contributing to a projected 10% increase in service connections.

2.2 SERVICE AREA PROFILE

Yorba Linda is located against the foothills in the northern part of Orange County, approximately 13 miles northeast of Disneyland. Topography within the YLWD service area varies from about 200 feet above sea level to a high of about 1,400 feet above sea level. The Yorba Linda climate is typical for the coastal plain of Southern California with a long-term average rainfall of 14.2 inches per year and annual temperatures averaging about 64 degrees Fahrenheit.

The YLWD service area was originally located within an unincorporated county area, but now includes most of the City of Yorba Linda, and parts of the Cities of Placentia, Anaheim, Brea, and portions of unincorporated Orange County. The service area can be thought of as having two major parts: the western portion being an older established area whose eastern boundary was formerly the District's eastern limit; and the eastern portion consisting of the developed area. These two portions are intersected by a 400-acre strip of residential development known as the Locke Ranch. The Locke Ranch area receives its water service from the GSWC — Placentia Division, and its sewer service from YLWD.

YLWD provides water service to all residents and businesses within its service area. The service area is bounded by the service areas of the Golden State Water Company, City of Anaheim Water Department, and City of Brea Water Department. YLWD has emergency interconnections with each of these surrounding agencies.

2.2.1 Service Area Divisions

YLWD's existing service area includes the Western Service Area (WSA), which is essentially the original service area and Improvement District (ID) Numbers 1 and 2. Table 2.2-1 Estimated YLWD Service Area Acreage identifies the boundaries of each of these sub-areas, as well as areas currently under development or areas planned for future development.

YLWD's service area was divided into the three sub-areas because of the arrangements that financed the major "backbone" facilities. The WSA does not currently have public debt. All bonds for the WSA have been retired. New development projects north of the WSA must fund the "backbone" facilities required to serve their projects without help from YLWD. The Board of Directors approved the annexation of ID 1 and 2 in May and June of 1978, respectively. In June 1978, voters in both Improvement Districts authorized issuance of general obligation bonds to finance construction of production, storage, and transmission, or "backbone" facilities. To date, ID 1 has issued two series of general obligation bonds and one series of refunding bonds. ID 2 has issued three series of general obligation bonds and two series of refunding bonds.

Table 2.2–1 Estimated YLWD Service Area Acreage		
Area	Acreage	Percent of Total
Total City of Yorba Linda Acreage	12,621	
City of Yorba Linda Areas Not Served by YLWD		
Locke Ranch (served by GSWC)	–457	
Shapell Industries Property	–177	
Total City of Yorba Linda Subtractions	–634	
YLWD Service Area within the City of Yorba Linda	11,987	83%
Other Areas in the YLWD Service Area		
Unincorporated County of Orange	1,462	10%
City of Placentia	774	5%
City of Anaheim	235	2%
City of Brea	17	<1%
YLWD Service Area Outside of the City of Yorba Linda	2,488	17%
Total Acreage in YLWD Service Area	14,475	100%

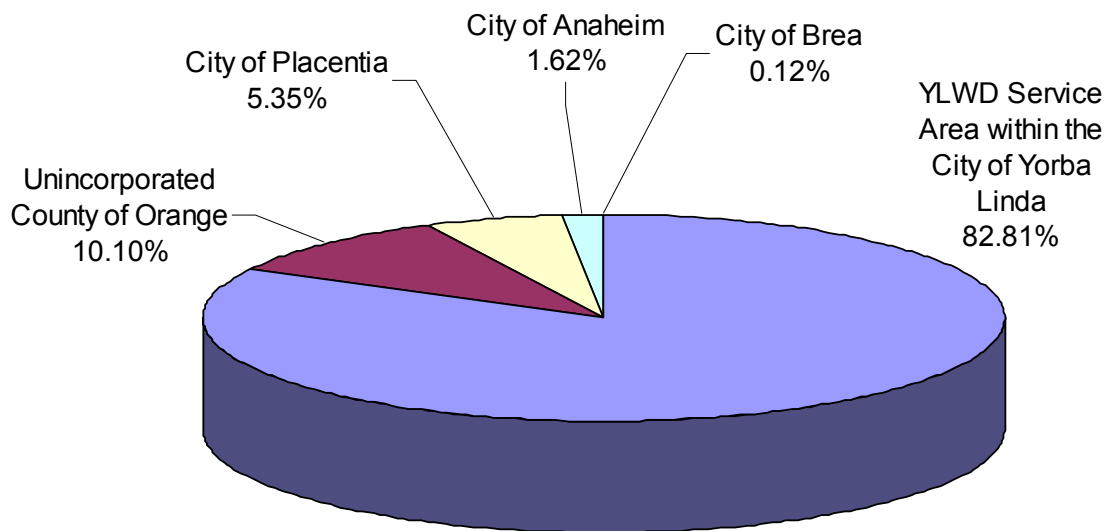


Figure 2.2–1: Estimated YLWD Service Area Acreage

2.2.1.1 Western Service Area

The WSA covers approximately 5,800 acres of the older section of YLWD lying generally between Valencia Avenue in the City of Placentia and Fairmont Boulevard in the City of Yorba Linda. This land has been under development since the establishment of the Yorba Linda Water Company in 1909. It is approximately 95 percent developed. Remaining open land will be developed with in-fill projects consisting primarily of single-family dwellings and areas of the redevelopment area.

2.2.1.2 Improvement District 1

ID 1 covers approximately 4,300 acres. This area lies generally east of Fairmont Boulevard, north of Esperanza Road and west of Hidden Hills Road. It was formed in June 1978 by a vote of the electorate living in the area at the time. The sole purpose of ID 1 was to define an area of benefit and use general obligation bonds to finance construction of production, storage, and transmission facilities for this area. Construction of homes began in late 1978 with the first occupancies beginning in the spring of 1979.

2.2.1.3 Improvement District 2

ID 2 covers approximately 3,500 acres, generally east of Hidden Hills Road and north of the Santa Ana River, and extends to the Orange/San Bernardino County Line. ID 2 was also formed in June 1978 by a vote of the electorate living in the area at the time. The sole purpose of ID 2 was to define an area of benefit and use general obligation bonds to finance construction of production, storage and transmission facilities for this area. Construction of homes began in 1981, with the first occupancies beginning in the spring of 1982.

2.2.1.4 Annexations

During the upcoming 5-year period, YLWD anticipates annexation and development of properties owned by Shapell Industries, Inc. These developments will be annexed into the Western Service Area. These properties are within YLWD's sphere of influence established by the Orange County Local Agency Formation Commission. It has been the District policy that each annexation is carefully analyzed to ensure the development pays its own way without subsidy from existing customers. Annexations to the District will be processed and administered in accordance with established District policies. The Pulte Home Development and the Shell Property, along the northerly boundary of the WSA, have already been annexed into YLWD. The Travis & Murdock Property is forecasted for development beginning around 2010.

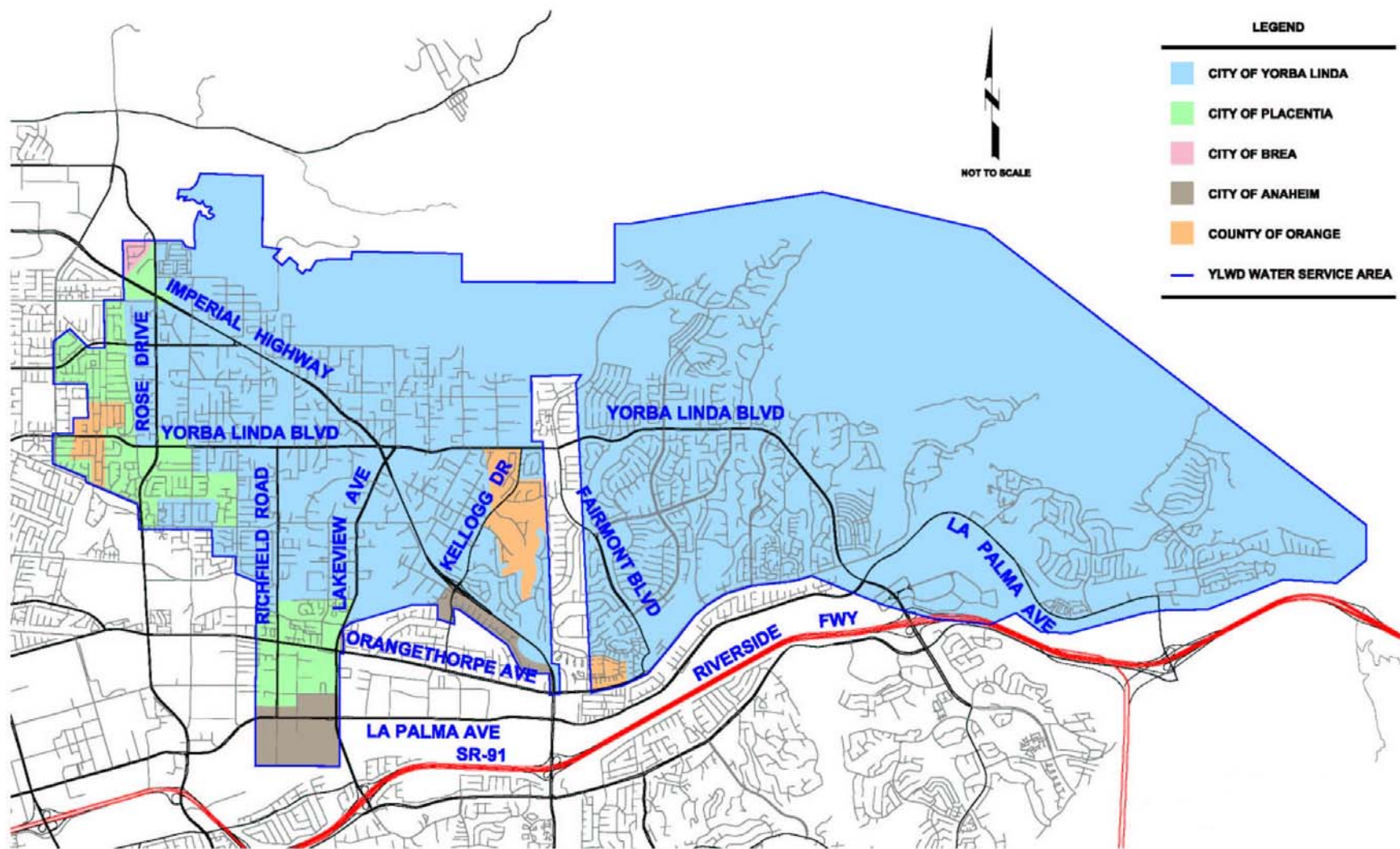


Figure 2.2–2: YLWD Service Area

Source: 2005 Domestic Water System Master Plan

2.2.1 Sewer Service

YLWD's sewer system serves customers both inside and outside of its political boundaries. In the Western Service Area YLWD owns and maintains a sewer lift station and a sewer collection system serving 10,873 customers with over 120 miles of various diameter trunk, "sub-trunk" and sewer main pipes. YLWD also owns and maintains approximately 18 miles of sewer system, serving 1,558 customers, in the Locke Ranch area.

In 1977 YLWD and the City of Yorba Linda agreed to divide sewer jurisdiction. Yorba Linda's jurisdiction includes all sewers lying generally east of Fairmont Boulevard and includes YLWD's ID 1 and ID 2. Portions of the Yorba Linda owned sewer system in ID 1 gravity flow into YLWD's existing sewer system located within the Locke Ranch system. Due to YLWD concerns that inadequate maintenance in the Yorba Linda owned system would eventually cause problems to the YLWD system, a small area of overlapping jurisdiction was established. In the area of overlapping jurisdiction, YLWD bills customers on the water bill for maintenance of approximately 26 miles of city owned sewer collection system.

2.3 POPULATION

The YLWD service area can best be described as a suburban residential "bedroom" community. According to demographic data from a 1988 City of Yorba Linda survey, about 60 percent of Yorba Linda's residents are classified as either professional persons or white collar workers. Retail commercial businesses, which service the predominately suburban population, are located at key points throughout YLWD's service area. No heavy industrial or manufacturing occurs within YLWD boundaries; however, there are several small industrial centers located in the southern and eastern portions of YLWD.

Currently about 90 percent of the service area is developed. From 1978 through 1981 YLWD experienced growth of water service connections that occasionally exceeded 12 percent per year. In the past few years the growth rate has slowed, along with Southern California's general economic slowdown. The total customer base is 22,417 as of November 2003. Table 2.3: Population – Current and Projected details modest population growth for the YLWD's service area in 5-year increments, starting from 2005 and projecting to 2030.

Table 2.3: Population – Current and Projected						
	2005	2010	2015	2020	2025	2030
Service Area Population¹	75,445	80,007	82,584	84,155	84,860	85,355

Sources: (1) Center for Demographic Research, California State University, Fullerton supplied the population projections for the City of Yorba Linda and 3.5 people per connection outside the City

In addition, using a bar graph, Figure 2.2.1 illustrates the projected population growth relative to the previous years.

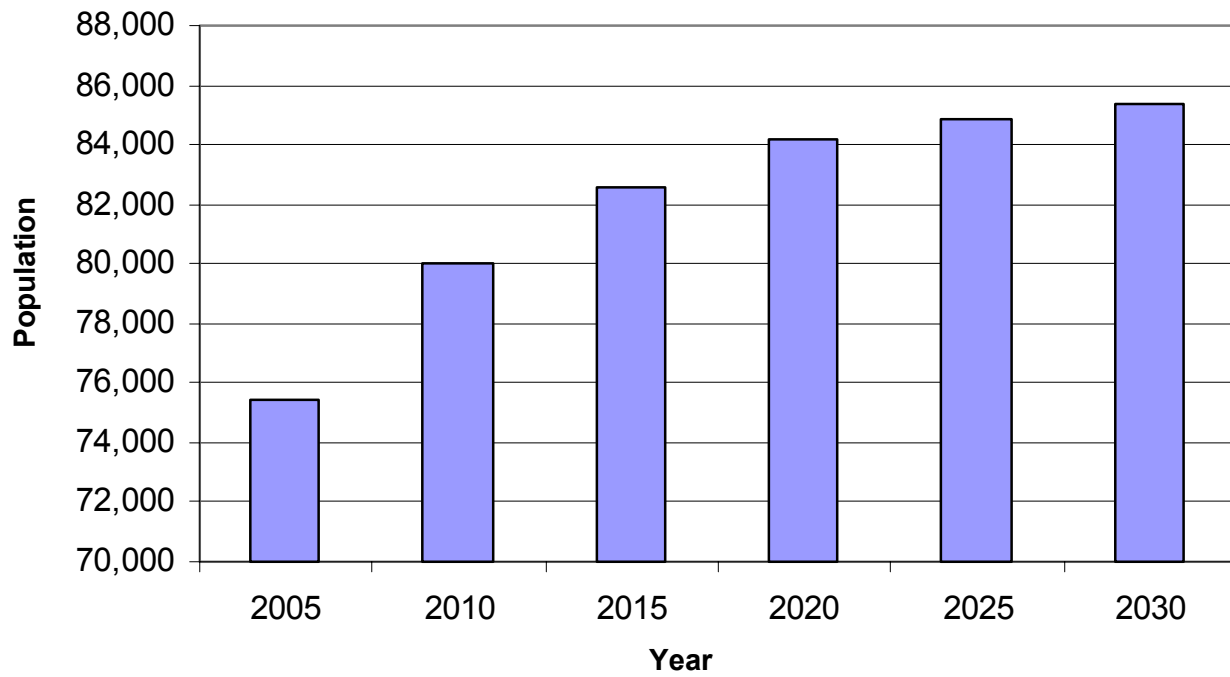


Figure 2.3.1: Projected Population Growth

2.4 Climate

Yorba Linda is located approximately 30 miles southeast of metropolitan Los Angeles against the foothills in Northern Orange County near the San Bernardino County line. The Yorba Linda climate is typical for the coastal plain of Southern California with a long-term rainfall of 14.2 inches per year and annual temperatures averaging about 63 degrees Fahrenheit between the years 1948 and 2005. Table 2.4: Climate details the monthly average evapotranspiration rate, rainfall, and temperature.

Table 2.4: Climate						
	Jan.	Feb.	Mar.	Apr.	May	Jun.
Standard Average ETo²	2.18	2.49	3.67	4.71	5.18	5.87
Average Rainfall³(in)	3.45	2.98	2.30	1.07	0.26	0.04
Average Temperature⁴(°F)	54.85	56.60	57.54	60.38	63.95	68.14

Table 2.4: Climate (Continued)							
	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Standard Average ETo²	6.29	6.17	4.57	3.66	2.59	2.25	49.63
Average Rainfall³(in)	0.01	0.13	0.25	0.35	1.61	1.77	14.21
Average Temperature⁴(°F)	73.60	73.95	72.23	66.79	60.31	55.58	63.32

Sources: (2) <http://www.cimis.water.ca.gov/cimis/welcome.jsp>

(3) <http://www.wrcc.dri.edu/CLIMATEDATA.html>

(4) http://www.elook.org/city/cities/LaHabra_California.html

Additionally, Figure 2.4.1: City of Yorba Linda climate concurrently illustrates the average (from 1948 to 2005) rainfall and temperature on a monthly timeframe.

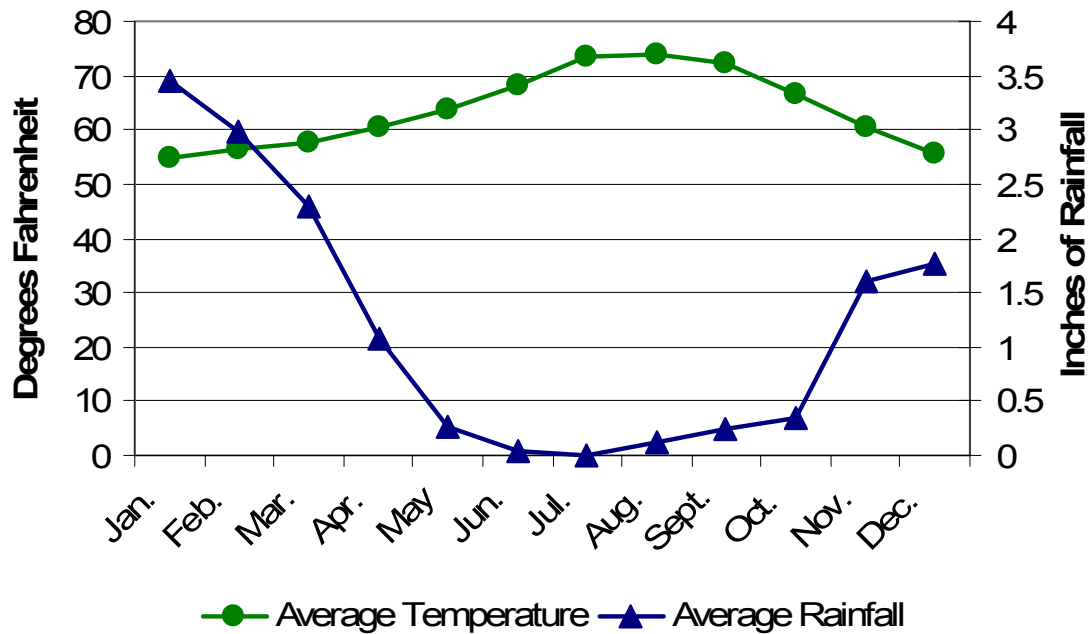


Figure 2.4.1: City of Yorba Linda Climate

2.5 LAND USE

YLWD provides water to approximately 75,000 people through about 23,000 service connections. The majority of these customers are residential. YLWD categorizes its customers into seven major categories.

- **Residential:** This class consists of residential accounts with a single-family home, duplex, or condominium. Water use in this category is generally related to weather conditions, public awareness of water conservation, and lot size.
- **Commercial and Industrial:** This class includes apartment buildings and commercial businesses. The commercial customers include markets, service stations, restaurants, hospitals, office buildings, car washes, and other commercial service industry establishments. The YLWD service area does not currently include heavy industry or water intensive commercial activities.
- **Landscape:** The Landscape class includes private and public agency accounts that use water for landscaping purposes. The City of Yorba Linda is YLWD's largest landscape customer. This does not include the untreated water used for the city owned Black Gold Golf Course.
- **Agricultural:** This class currently only includes approximately 20 meters. When YLWD was formed, this class accounted for the majority of water use; however, agricultural land use is continually decreasing with time.
- **Construction:** This class consists of temporary connections established for construction purposes.
- **Untreated Water:** Established in 2000, this class consists of only one connection—the city owned Black Gold Golf Course.

The map on the following page depicts land use within the YLWD service area by customer category.

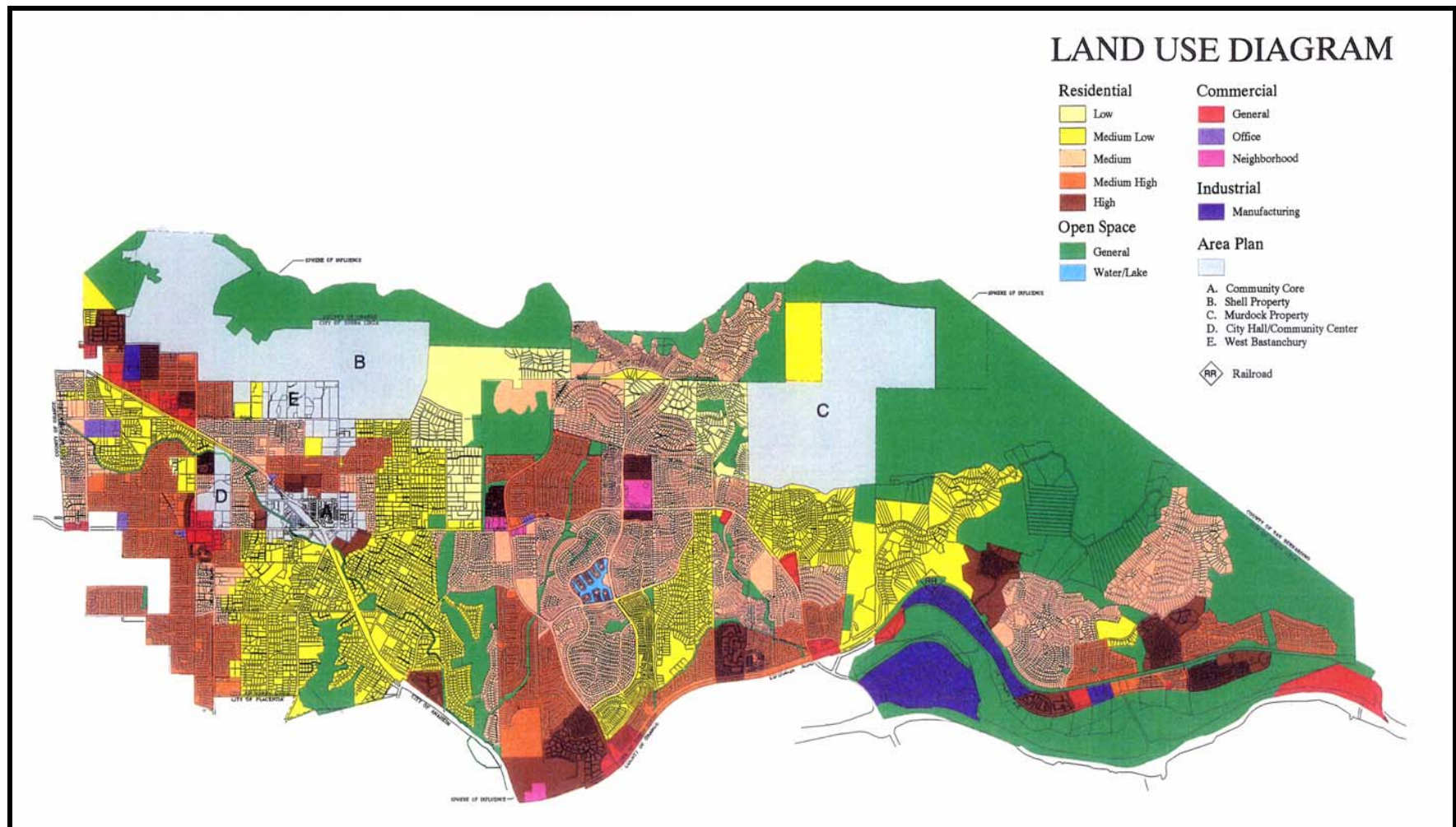


Figure 2.5-1: YLWD Land Use by Customer Category

Source: 2005 Domestic Water System Master Plan

The following figure depicts the service connections by customer category, as of 2003, most of which are also residential.

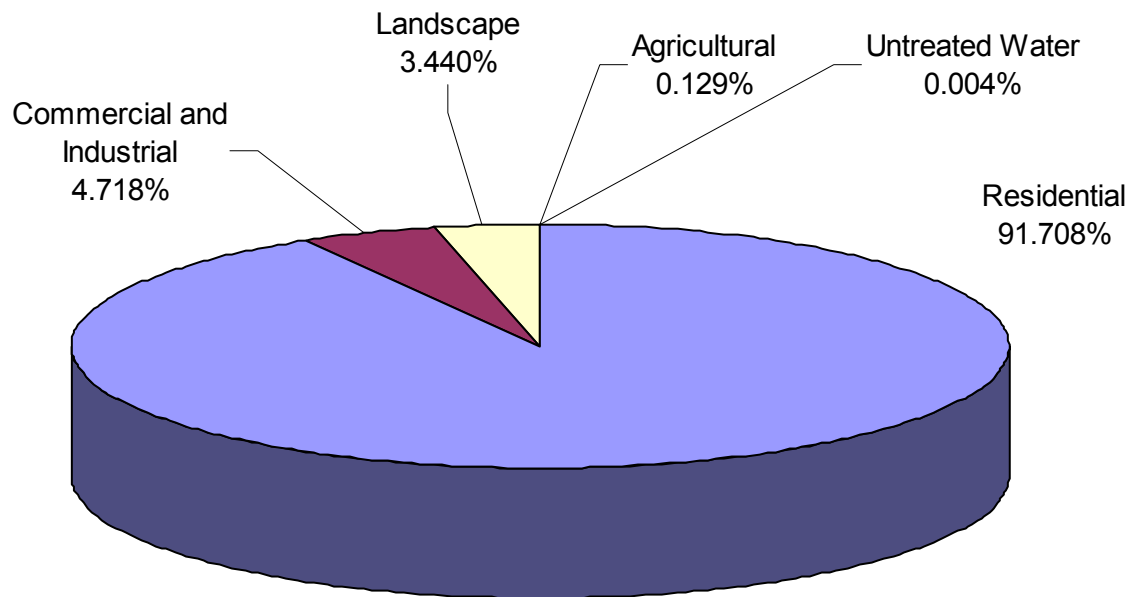


Figure 2.5-2: Service Connections by Customer Category (2003)

Source: 2005 Domestic Water System Master Plan

2.6 WATER SYSTEM SUMMARY

2.6.1: System Pressure Zones

YLWD is sub-divided into six separate pressure zones. Each zone utilizes either a gravity system or pumping facilities to maintain pressure. The following table describes the pressure zones, lowest elevation served, highest elevation served and reservoir high water level set to maintain the hydraulic grade line for each pressure zone as they currently exist within the YLWD distribution system.

Table 2.6–1: Pressure Zones			
Hydraulic Grade Line (Pressure Zone Designation)	Lowest Elevation Served (Feet–MSL)	Highest Elevation Served (Feet–MSL)	Reservoir HWL or PRS HGL (Feet–MSL)
428 (Zone 1A)	250	320	428
430 (Zone 1B)	271	330	430
570 (Zone 2)	321	450	570
675 (Zone 3A)	434	580	675
680 (Zone 3B)	320	580	680
718 (Zone 4CR1)	424	544	718
780–1 (Zone 4A)	545	680	780
780–2 (Zone 4B)	581	680	780
780–3 (Zone 4C)	581	680	780
780–4 (Zone 4D)	581	680	780
908 (Zone 5BR1)	568	814	908
920 (Zone 5A)	633	820	920
991 (Zone 5L)	681	870	991
1000 (Zone 5B)	681	900	1,000
1133 (Zone 6D)	781	1,045	1,133
1160 (Zone 6A)	890	1,045	1,160
1165 (Zone 5U)	871	1,065	1,165
1300 (Zone 6B)	875	1,020	1,300
1390 (Zone 6C)	1,045	1,275	1,390

Souce: Yorba Linda Water District 2005 Domestic Water System Master Plan

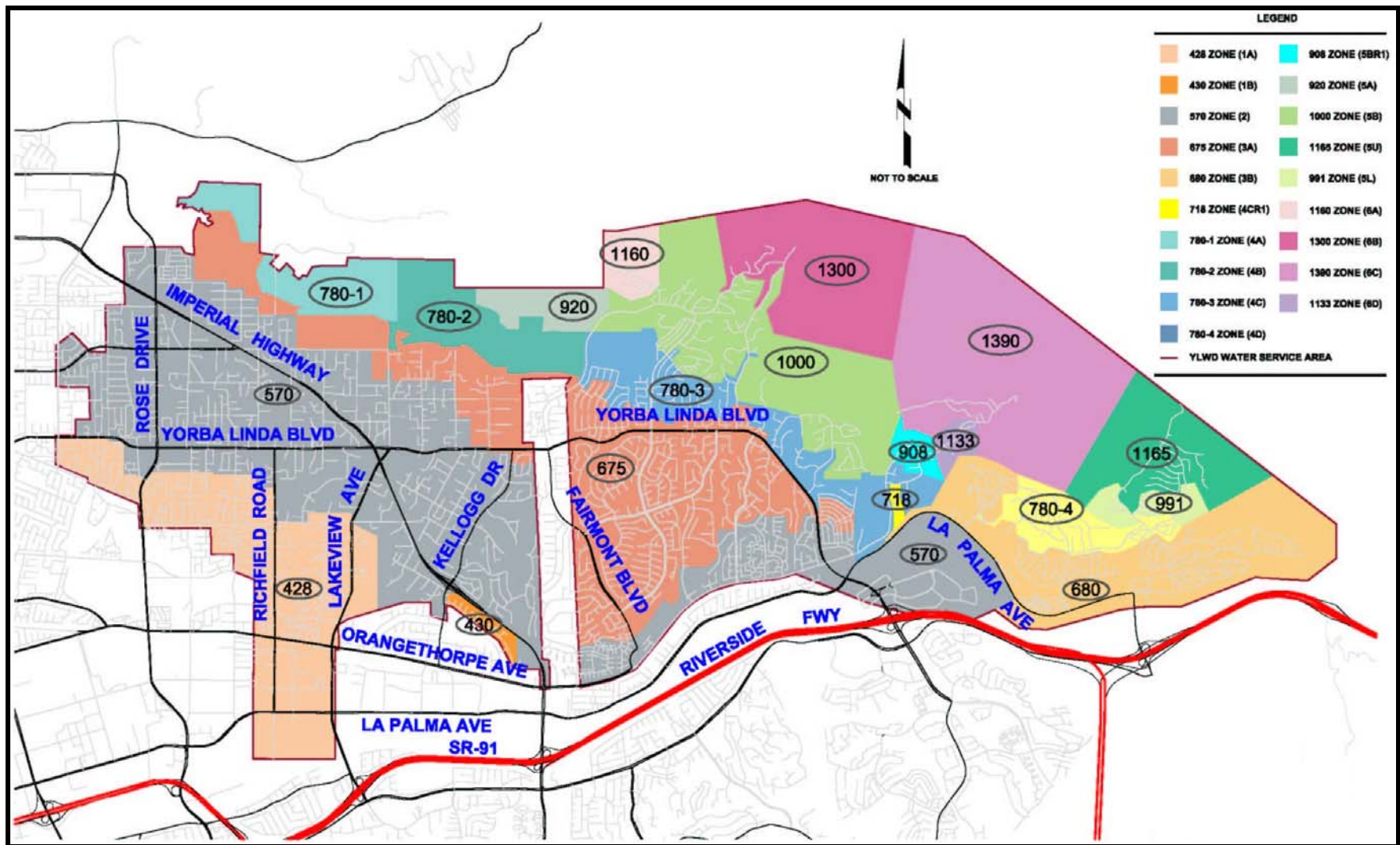


Figure 2.6-1: YLWD Pressure Zones

Source: 2005 Domestic Water System Master Plan

2.6.2: Distribution System Facilities

YLWD's distribution system includes eight wells, one untreated water and three treated water import connections with Metropolitan, 12 booster pumping stations, 13 water storage reservoirs, 36 pressure reducing stations, and 10 emergency interconnections with neighboring agencies. YLWD obtains approximately half of its water from wells and the remaining half from the Metropolitan import connections. The system consists of many different pressure zones and serves approximately 23,000 potable water service connections. Listed in the following tables is a summary of the aforementioned distribution system facilities.

Table 2.6–2: Imported Water Connections (via Metropolitan)	
Turnout	Import Capacity (GPM)
Treated	
OC–51	4,500
OC–66	13,500
OC–89	1,800
Total Treated	18,000
Raw (Untreated)	
OC–36	1,800
Total Untreated	1,800

Table 2.6–3: Booster Pumping Stations		
Location	Booster Number	Rated Horsepower (HP)
Highland		
	1	125
	2	125
	3	200
	4	200
	5	304

Table 2.6–3: Booster Pumping Stations

Location	Booster Number	Rated Horsepower (HP)
Bastanchury		
	1	30
	2	30
	3	200
Palm Avenue		
	1	60
Valley View		
	1	30
	2	30
	3	65
Paso Fino		
	1	40
	2	40
	3	50
Box Canyon		
	1	40
	2	40
Fairmont		
	1	145
	2	145
Spring View		
	1	40
	2	40
	3	20
Hidden Hills		
	1	40
	2	40
	3	40
	4	20
Elk Mountain		
	1	40
	2	200
	3	200
Timber Ridge		
	1	15
	2	40

Table 2.6–3: Booster Pumping Stations		
Location	Booster Number	Rated Horsepower (HP)
Santiago	3	40
	4	250
	1	25
	2	75
	3	100
	4	240

Table 2.6–4: Reservoirs	
Reservoir Name	Capacity (MG)
Highland	4.60
Bastanchury	4.00
Fairmont	7.50
Valley View	1.98
Bryant Ranch	2.30
Gardenia	1.98
Spring View	8.00
Elk Mountain	6.00
Quarter House	3.75
Little Canyon	0.88
Santiago	1.10
Camino De Bryant	3.20
Chino Hills	0.50
Total Water Storage Capacity	45.79 Million Gallons

Table 2.6–5: Service Connections			
Customer Category	Number of Connections	Percent of Total Connections (%)	Percent of Water Use (%)
Residential	20,583	92	71
Commercial and Industrial	1,059	5	9
Landscape	772	3	16
Agricultural	29	<1	<1
Untreated Water	1	<1	3
Totals	22,417	100	100

Table 2.6–6: Active Groundwater Wells		
Well Number	Location	Capacity (GPM)
1	Richfield Plant	2,800
5	Richfield Plant	2,300
7	Richfield Plant	2,000
10	Richfield Plant	1,850
11	Richfield Road	1,900
12	Richfield Plant	2,000
15	Lakeview Avenue	1,250
18	Richfield Plant	2300
19	Richfield Plant	Pending
Total Maximum Pumping Capacity		16,400 GPM

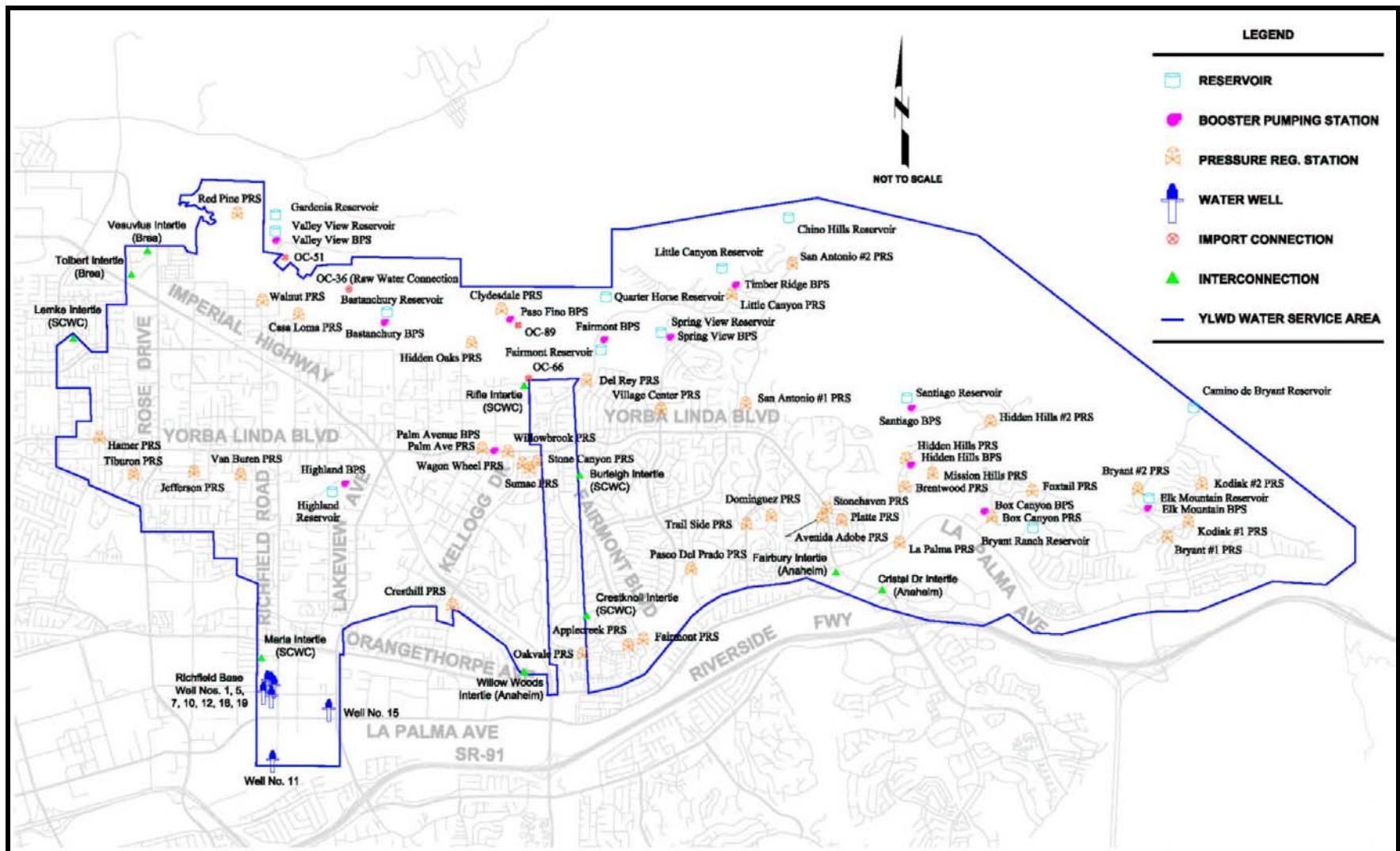


Figure 2.6-2: YLWD System Facilities

Source: 2005 Domestic Water System Master Plan